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10/540,624	06/24/2005	Masato Honma	IPE-057	7137
20374 7590 06/24/2009 KUBOVCIK & KUBOVCIK SUITE 1105 1215 SOUTH CLARK STREET ARLINGTON, VA 22202				
EXAMINER				
HIGGINS, GERARD T				
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06/24/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,624

Applicant(s)

HONMA ET AL.

Examiner

GERARD T. HIGGINS

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8 and 11-38 is/are pending in the application.
- 4a) Of the above claim(s) 14,15,18 and 21-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,11-13,16,17,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 05/14/2009 has been entered.

Response to Amendment

2. The amendment filed 05/14/2009 has been entered. Currently claims 1, 3, 5-8, and 11-38 are pending, claims 2, 4, 9, and 10 are cancelled, and claims 14, 15, 18, and 21-38 are withdrawn from consideration.

Specification

3. The disclosure is objected to because of the following informality: the phrase "the maximum thickness of an area...is 10 microns or more" renders the claim awkward because there is no maximum. This phrase is present at least at page 6, lines 21-22 and page 25, lines 8-10; however, applicants are required to correct this problem as it pertains to any awkward phraseology of this type throughout the specification as

originally filed. The Examiner interprets the limitation to be "the thickness of an area...is 10 microns or more."

Appropriate correction is required.

Claim Objections

4. Claims 1 and 17 are objected to because of the following informalities: the phrase "the maximum thickness of an area...is 10 microns or more" renders the claim awkward because there is no maximum. The Examiner interprets this limitations as "the thickness of an area...is 10 microns or more," please see claim 5. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 3, 5-8, 11-13, 16, 17, 19, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With regard to claims 1 and 17, the Examiner does not find support to state that the "resin constituting said thermosetting resin layer is not mixed with a resin

constituting said thermoplastic resin layer" and the "resin constituting said thermoplastic resin layer is not mixed with a resin constituting said thermosetting resin layer" in the specification as originally filed. The Examiner notes that the cited phraseology clearly signifies a "negative" or "exclusionary" limitation for which the applicants have no support in the original disclosure. Negative limitations in a claim which do not appear in the specification as filed introduce new concepts and violate the description requirement of 35 USC 112, first paragraph, *Ex Parte Grasselli, Suresh, and Miller*, 231 USPQ 393, 394 (Bd. Pat. App. and Inter. 1983); 783 F. 2d 453.

The insertion of the above phraseology as described above positively excludes mixing, however, there is no support in the present specification for such exclusion. While the present specification is silent with respect to the use of mixing, is noted that as stated in MPEP 2173.05(i), the "mere absence of a positive recitation is not the basis for an exclusion."

With further regard to claims 1, 7, and 17, the implication brought about by applicants' amendment that the molded object is distinct from the layered product, i.e. "the surface of said thermoplastic resin layer opposite to the surface of the molded object" and "thermoplastic resin layer provided on one of the surfaces of the molded object," is not supported by the specification as originally filed. The layered product goes into forming the molded object and as such cannot be bonded to the molded object. Evidence to this fact is that applicants' claims state "[a] layered product **as** a molded object." The Examiner does find support to state that the "face of said

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thermoplastic resin layer opposite to said interface is positioned **as** the surface of said molded object."

With further regard to claims 1 and 17, the Examiner does not find support to state that the reinforcing continuous filaments are "substantially parallel" to the surface of the molded object in the specification as originally filed. The Examiner notes that this rejection can be overcome by deleting the word "substantially."

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-3, 5-13, 16, 17, 19, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claims 1 and 17, the phrases "[a] layered product as a molded object" and "a thermoplastic resin layer provided **on** one of the surfaces of the molded object" render the claim indefinite because it is unclear if the layered product **is** the molded object or it is to be **apart of** a molded object. Given the context of the claim and applicants' specification (please see Figure 1 and page 16, lines 5-8), the Examiner deems that the layered product is "for a molded object" and the "thermoplastic resin layer is provided **as** one of the surfaces of the molded object," which is how the claims will be interpreted. This therefore means that claims 1 and 17 have intended use limitations with regard to the fact that the layered product is "for a molded object." Please note that these intended use limitations in claim 17 extend to the same

limitations seen for the second member comprising an identical layered product as defined in claim 1.

With further regard to claims 1 and 17, the phrases that state that the "resin constituting said thermosetting resin layer is not mixed with a resin constituting said thermoplastic resin layer" and the "resin constituting said thermoplastic resin layer is not mixed with a resin constituting said thermosetting resin layer" render the claims indefinite because the broadest reasonable interpretation of the term "mixed" would include the rugged interface type structure as understood from applicants' specification. As such, it is unclear how there can be a rugged interface that is not mixed.

The term "rugged" in claims 1 and 17 is a relative term which renders the claim indefinite. The term "rugged" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear to what degree a surface must be non-flat for it to be considered "rugged;" furthermore, it is unclear how rugged applicants' boundary region is. For purposes of examination, the Examiner will treat the term "rugged" as any surface that is not perfectly flat. The definition with regard to the thickness of the area where the continuous filaments are present in the thermoplastic resin layer does not define the ruggedness region overall. The Examiner also notes that the term rugged was examined as an adjective, and is a term of degree as an adjective. This rejection can be overcome by deleting the term "rugged."

With regard to claims 1 and 17, the term "substantially parallel" is a relative term which renders the claim indefinite. The term "substantially parallel" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how parallel the reinforcing continuous filaments must be in order to be considered "substantially parallel." The Examiner interprets the phrase as being "parallel." This rejection can be overcome by deleting the word "substantially."

With further regard to claim 7, the limitations "[a] layered product as a molded object" and "the two layered products are positioned **on** the surfaces of said molded object opposite to each other" renders the claims indefinite because it is unclear if the layered product **is** the molded object or it is to be **apart** of a molded object. Given the context of the claim and applicants' specification (please see Figure 1 and page 16, lines 5-8), the Examiner deems that the layered product is "for a molded object" and "the two layered products are positioned **as** the surfaces of said molded object opposite to each other," which is how the claim will be interpreted.

With regard to claim 13, the phrase "selected from **a** group consisting of" is indefinite because it is an improper Markush group. This rejection can be overcome by changing the phrase to "selected from **the** group consisting of." The Examiner interprets the phrase as if the group was a closed group.

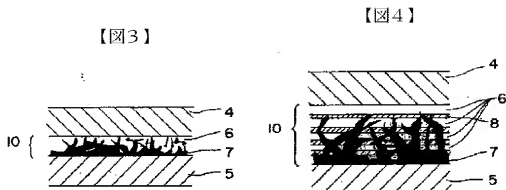
Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 3, 5-8, and 11-13 are rejected under 35 U.S.C. 103(a) as obvious over Obara (JP 07-047152), machine translation included in view of Nishimura et al. (JP 07-112039), machine translation included.

With regard to claims 1 and 5, Obara teaches a layered tennis racket frame [0007]. The frame is comprised of a thermosetting resin [0008], a thermoplastic resin [0009], and continuous fibers in both the thermosetting [0008] and thermoplastic layers [0012] from the point of providing the greatest strength of the molded object. With regard to the limitation that the interface is "rugged," Obara teaches at [0015] that the "most important point about this invention" is the fact that the thermosetting resin and thermoplastic layers are "intermingled;" furthermore, Obara shows this intermingling in Figures 3 and 4.



The intermingling is shown in the area 10. The material of part 4 is a thermosetting resin identical to the material of part 6. The material of part 5 is a thermoplastic resin identical to the material of part 7. The Examiner deems this teaches a two-layer structure as parts 4 and 6 are the thermosetting material layer and parts 5 and 7 are the thermoplastic layer; furthermore, Figure 4 clearly shows carbon fibers 8 passing through the interface and going through both the thermosetting and thermoplastic layers. This means that parts 4 and 6 are one material, and parts 5 and 7 are one material. The intermingling of 4 and 6 with 5 and 7 at the boundary between 6 and 7 reads on applicants' rugged interface region. The Examiner deems the intermingling in this boundary region to comprise ruggedness. With regard to the limitation that the either of the thermoplastic layer or the thermosetting resin layer are "not mixed" with the other, the Figures show that the layers have a defined boundary and not composed of an islands of material, which reads on these limitations. With regard to the limitation that the thermoplastic resin layer is on the surface of the object, i.e. the molded object, Obara teaches at [0014] that the object may have the thermosetting resin or the thermoplastic layer as the outer layer for the racket frame; however, Obara does not

specifically teach the thickness of the area where said continuous filaments exist in said thermoplastic resin layer.

Nishimura et al. disclose at [0009] that it is known to make a thermoplastic layer of a tennis racket 1 mm in thickness. Clearly, the fibers contained in said thermoplastic layer would not be in a region larger than 1mm or 1000 microns.

Since Nishimura et al. and Obara are both drawn to molded tennis rackets that have thermosetting and thermoplastic resin layers with reinforcing fibers that are rugged/intermingled or have an irregular pattern at the interface of the layers; it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the thermoplastic layer of Obara approximately 1 mm (1000 microns) in thickness and therefore to contain the reinforcing fibers in an area smaller than that, including the thickness regions claimed. One of ordinary skill in the art would understand that the thickness region of reinforcing fibers would have a direct impact on the rigidity and overall strength of the resins; furthermore, one of ordinary skill would know to make the reinforcing fiber not present on the surface of the tennis racket in order to prevent splintering of said reinforcing fibers, which could injure the consumer of said tennis racket.

The size and thickness of tennis racquets are driven by having a lightweight yet strong composite. One of ordinary skill would know to place the reinforcing fibers in any thickness amount in said thermoplastic resin, including greater than 10 microns or between 10 and 1000 microns as claimed, to provide the proper strength to the resultant article.

With regard to claims 3 and 12, Obara teaches at [0008] that epoxy resin is preferred as the thermosetting resin. He also teaches at [0021] that the thermosetting resin is heated in a die temperature of 70 °C, and then stiffened at 160 °C for 20 min. Judging by the fact that the preferentially used materials are the same and that these heating temperatures are greater than 60 °C, Obara will inherently anticipate claim 3.

With regard to claim 6, since the racket frame is formed as a tube comprising joined thermosetting and thermoplastic layers, and that the layers may be formed in any order [0014]; it is clear that the thermoplastic layer may comprise the inner layer/surface of the frame, and therefore that would lead it to inherently have a surface area between 0.1 and 50% of the total surface area. This is true because the outer layer of the racket frame would have a greater surface area than the inner layer, and since the total surface area of the frame must be the sum of the surface areas of the inner and outer layers; it would necessarily be true that the inner layer must have a surface area between 0.1 and 50%.

With regard to claim 7, the Examiner deems the limitations of this claim to be a mere duplication of parts. It has been held that "mere duplication of parts has no patentable significance unless a new and unexpected result is produced." Please see MPEP 2144.04 and *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). In this instance merely duplicating the stratum of a thermoplastic and thermosetting resins with reinforcing fibers contained therein would predictably add to the structural integrity of the device overall.

With regard to claim 8, considering the fact that these materials (continuous arranged fibers set in an intermingled/rugged thermosetting and thermoplastic article, additionally please see the anticipation evidence presented for claims 11-13) are the same; a test piece formed in the same manner of applicants would inherently comprise the tensile/bonding strength; furthermore, Obara mentions the intensity, rigidity, and endurance of the racket at [0006].

With regard to claim 11, Obara teaches using carbon fibers at [0008] and [0012].

With regard to claim 13, Obara teaches at [0009] the different thermoplastic materials, including polyolefins, polyamides, polyesters, acrylics, polycarbonates, and polystyrenes.

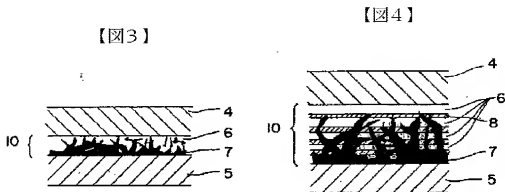
11. Claims 16, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inogakura et al. (JP 09-277420) in view of Obara (JP 07-047152) and further in view of Nishimura et al. (JP 07-112039).

With regard to claim 16, Inogakura et al. teach bonding of a first member to a second member by way of an adhesive to create and "integral moulding" of said members [0011]; however, it does not teach the 1st member of applicants' claim 1.

Obara teaches a layered tennis racket frame [0007]. The frame is comprised of a thermosetting resin [0008], a thermoplastic resin [0009], and continuous fibers in both the thermosetting [0008] and thermoplastic layers [0012] from the point of providing the greatest strength of the molded object. With regard to the limitation that the interface is "rugged," Obara teaches at [0015] that the "most important point about this invention" is

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the fact that the thermosetting resin and thermoplastic layers are "intermingled;" furthermore, Obara shows this intermingling in Figure 3.



The intermingling is shown in the area 10. The material of part 4 is a thermosetting resin identical to the material of part 6. The material of part 5 is a thermoplastic resin identical to the material of part 7. The Examiner deems this teaches a two-layer structure as parts 4 and 6 are the thermosetting material layer and parts 5 and 7 are the thermoplastic layer; furthermore, Figure 4 clearly shows carbon fibers 8 passing through the interface and going through both the thermosetting and thermoplastic layers. This means that parts 4 and 6 are one material, and parts 5 and 7 are one material. The intermingling of 4 and 6 with 5 and 7 at the boundary between 6 and 7 reads on applicants' rugged interface region. The Examiner deems the intermingling in this boundary region to comprise ruggedness. With regard to the limitation that the either of the thermoplastic layer or the thermosetting resin layer are "not mixed" with the other, the Figures show that the layers have a defined boundary and not composed of an islands of material, which reads on these limitations. With regard to the limitation that the thermoplastic resin layer is on the surface of the object, i.e. the molded object,

Obara teaches at [0014] that the object may have the thermosetting resin or the thermoplastic layer as the outer layer for the racket frame; however, Obara does not specifically teach the thickness of the area where said continuous filaments exist in said thermoplastic resin layer.

Nishimura et al. disclose at [0009] that it is known to make a thermoplastic layer of a tennis racket 1 mm in thickness. Clearly, the fibers contained in said thermoplastic layer would not be in a region larger than 1mm or 1000 microns.

Since Nishimura et al. and Obara are both drawn to molded tennis rackets that have thermosetting and thermoplastic resin layers with reinforcing fibers that are rugged/intermingled or have an irregular pattern at the interface of the layers; it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the thermoplastic layer of Obara approximately 1 mm (1000 microns) in thickness and therefore to contain the reinforcing fibers in an area smaller than that, including the thickness regions claimed. One of ordinary skill in the art would understand that the thickness region of reinforcing fibers would have a direct impact on the rigidity and overall strength of the resins; furthermore, one of ordinary skill would know to make the reinforcing fiber not present on the surface of the tennis racket in order to prevent splintering of said reinforcing fibers, which could injure the consumer of said tennis racket.

The size and thickness of tennis racquets are driven by having a lightweight yet strong composite. One of ordinary skill would know to place the reinforcing fibers in any thickness amount in said thermoplastic resin, including greater than 10 microns or

between 10 and 1000 microns as claimed, to provide the proper strength to the resultant article.

Since Inogakura et al. and Obara in view of Nishimura et al. are drawn to fiber-reinforced resin compositions that provide high strength and rigidity, it would have been obvious to one having ordinary skill in the art of fiber-reinforced resins at the time the invention was made to substitute the 1st member of Inogakura et al. with the fiber-reinforced resin composition of Obara in view of Nishimura et al. The results of such a substitution would have been known by one having ordinary skill, specifically an increase in the strength, rigidity, and endurance of the bonded members.

With regard to claim 17, Inogakura et al. disclose that the 2nd member is comprised of a thermoplastic [0010].

With regard to claim 19, Inogakura et al. disclose that the integrated molded object may be used with electrical and electric equipment [0015].

With regard to claim 20, while there is no disclosure that the fiber-reinforced plastic is a part member or a panel of a motor vehicle, a two-wheeler, a bicycle, an aircraft, or an architecture as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be

evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. part member or a panel of a motor vehicle, a two-wheeler, a bicycle, an aircraft, or an architecture, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art fiber-reinforced plastic and further that the prior art structure which is a fiber-reinforced plastic identical to that set forth in the present claims is capable of performing the recited purpose or intended use. Lastly, an aircraft, a two-wheeler, and a part member of a motor vehicle all may comprise electronic apparatuses, and therefore there is indirect disclosure of claim 20 in Inogakura et al.

Response to Arguments

12. Applicant's arguments filed 05/14/2009 have been fully considered but they are not persuasive.

With regard to applicants' arguments concerning the rejection of claims 1-3, 5-13, 16, 17, 19, and 20 under 35 U.S.C. 112, second paragraph (i.e. the term "rugged"), the Examiner maintains his rejection and notes that his rejection considered the term "rugged" to be an adjective, and is deemed to be a term of degree as an adjective. The

definition with regard to the thickness of the area where the continuous filaments are present in the thermoplastic resin layer does not define the ruggedness region overall.

Applicants' argue that the intermingled object of Obara is not a rugged interface as claimed and they have provided two drawings which illustrate what they say is the article of Obara and the claimed invention.

The Examiner respectfully disagrees and notes that the colors in the drawing of Obara are done to emphasize the intermingling at the boundary region, and *not* to denote separate materials. The material of part **4** is a thermosetting resin identical to the material of part **6**. The material of part **5** is a thermoplastic resin identical to the material of part **7**. The Examiner deems this teaches a two-layer structure as parts **4** and **6** are the thermosetting material layer and parts **5** and **7** are the thermoplastic layer; furthermore, Figure 4 clearly shows carbon fibers **8** passing through the interface and going through both the thermosetting and thermoplastic layers. This means that parts **4** and **6** are one material, and parts **5** and **7** are one material. The intermingling of **4** and **6** with **5** and **7** at the boundary between **6** and **7** reads on applicants' rugged interface region. This intermingling region is specifically designed to provide a strong bond between a thermosetting resin and a thermoplastic resin, identical to that claimed. The device of Obara is not "intermixed" or "blended" as is suggested by applicants but rather intermingled, which the Examiner deems to be the rugged interface as claimed.

With regard to applicants' illustrations, the Examiner notes that "the arguments of counsel cannot take the place of evidence in the record", *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner's position that the arguments

provided by the applicant regarding Obara must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), "the reason for requiring evidence in a declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001".

Additionally, the Examiner does not see Figure 4 of Obara and applicants' illustration of a layered product produced by Example 5 of Obara to be the same. As stated above, the Examiner deems parts **4** and **6** to be one material, and parts **5** and **7** to be one material. The intermingling of **4** and **6** with **5** and **7** at the boundary between **6** and **7** reads on applicants' rugged interface region. The Examiner deems that Figure 4 of Obara reads on applicants' illustration of a layered product defined in claim 1 of the present application.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-Th 10am-8pm est. (Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Bernatz, acting SPE for Carol Chaney, can be reached on 571-272-1505. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GERARD T. HIGGINS
Examiner
Art Unit 1794

/G. T. H./
Examiner, Art Unit 1794

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794